INTERNATIONAL FOOD
POLICY RESEARCH INSTITUTE
sustainable solutions for ending hunger and poverty
Supported by the CGIAR

IFPRI Discussion Paper 01129

October 2011

The Renewed Case for Farmers' Cooperatives

Diagnostics and Implications from Ghana

Gian Nicola Francesconi

Fleur Wouterse

Development Strategy and Governance Division

INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE

The International Food Policy Research Institute (IFPRI) was established in 1975. IFPRI is one of 15 agricultural research centers that receive principal funding from governments, private foundations, and international and regional organizations, most of which are members of the Consultative Group on International Agricultural Research (CGIAR).

PARTNERS AND CONTRIBUTORS

IFPRI gratefully acknowledges the generous unrestricted funding from Australia, Canada, China, Denmark, Finland, France, Germany, India, Ireland, Italy, Japan, the Netherlands, Norway, the Philippines, South Africa, Sweden, Switzerland, the United Kingdom, the United States, and the World Bank.

AUTHORS

Gian Nicola Francesconi, International Food Policy Research Institute
Postdoctoral Feloow, Development Strategy and Governance Division
g.n.francesconi@cgiar.org

Fleur Wouterse, International Food Policy Research Institute
Research Fellow, West and Central Africa Office
f.wouterse@cgiar.org

Notices

[1] IFPRI Discussion Papers contain preliminary material and research results. They have been peer reviewed, but have not been subject to a formal external review via IFPRI's Publications Review Committee. They are circulated in order to stimulate discussion and critical comment; any opinions expressed are those of the author(s) and do not necessarily reflect the policies or opinions of IFPRI.

[2.] The boundaries and names shown and the designations used on the map(s) herein do not imply official endorsement or acceptance by the International Food Policy Research Institute (IFPRI) or its partners and contributors.

Contents

List of Tables

List of Figures

List of Boxes

ABSTRACT

This study presents a stylized but insightful diagnostic of the problems limiting collective action in Ghanaian farmer-based organizations (FBOs). In our analysis, we use a structure-conduct-performance framework, econometrics, and new primary data for 500 FBOs collected through surveys and games. We find that most Ghanaian FBOs are inactive, failing to mobilize their members into any sort of collective action. To understand why this is so, we postulate that in rural Ghana, four typologies can be used to classify FBOs and to distinguish them on the basis of their membership structure and rules of conduct. We then show that FBOs fail to mobilize collective action whenever their structure and conduct are not aligned. In particular, misalignment leads mainly to problems of access to external credit and to a lesser extent to problems of internal cohesion. To maximize collective action, this study recommends the diversification of policy through recognizing the four different types of FBOs, each facing particular and to some extent opposing problems.

Key words: cooperatives, collective action, games, econometrics, Ghana

ACKNOWLEDGMENTS

This study was made possible thanks to the financial, logistic, and intellectual support of the International Food Policy Research Institute's Ghana Strategy Support Program (GSSP), led by Shashidhara Kolavalli and coordinated by Adam Salifu. Field work activities were made possible thanks to a team of 17 bright and motivated graduate students from Accra, Tamale, and Kumasi Universities: Alidu Sanatu Mustapha, Stephen Appiah, Emelda Mabel Quainoo, Patrick Koomson, Edem Aklaku Komla, Abdul-Rahaman Issahaku, Kennedy Kobina Donyong, Abdul Wahab Suleman, Akuffo Amankwah, Charles Yaw Okyere, Ebenezer Obeng-Bio, Mark Kwame Offei, Amadu Ibrahim, Tiifu Baba Anambabi, Hillary Mireku Bortey, Abubakari Yahaya Bukari, and Hayford Mensah Ayerakwa. The authors are further indebted to Afua Banful, Angelino Viceisza, and Tanguy Bernanrd for their advice.

1. INTRODUCTION

A cooperative is essentially an organization owned and operated by a group of individuals for their mutual benefit. In fact, cooperatives can be defined as autonomous associations of people who get together voluntarily to meet their common economic, social, and cultural needs and aspirations through jointly owned and democratically controlled organizations (ICA 2007). The United Nations (UN) has declared 2012 the International Year of Cooperatives (IYC), highlighting the contribution of cooperatives to socioeconomic development, and in particular recognizing their impact on poverty reduction, employment generation, and social integration.[1] In fact, the UN has adopted a resolution that encourages itself, all member states, and all relevant stakeholders to take advantage of the IYC to raise awareness of the contribution that cooperatives can make to social and economic development and to promote their formation and growth. Arguably, the decision to make 2012 the IYC stems from the widespread perception that globalization has led to the intensification of market competition, increasing economic inequality, environmental degradation, and violations of human rights—forcing the poor, vulnerable, and oppressed to rediscover the importance of collective action to better sustain their livelihoods (Di Vico 2008). In a growing number of developed economies, this societal perception is gradually being translated into policy, such as the *Big Society* policy adopted in the United Kingdom, which calls for power devolution from overly developed states and multinational corporations to local communities and collectivities.[2] In the developing world, similar policy reforms have also been strongly advocated. For example, Ostrom argues that power devolution in favor of collectivities can reduce inefficiencies associated with centralized governance as well as the environmental side effects and the social injustice produced by market-led economies.[3]

The renewed focus on the role of cooperatives in development coincides with the death of Oakeshott, champion of industrial cooperativism and author of the book *The Case for Workers' Cooperatives* (1978). The work of Oakeshott is deeply rooted in the philosophy of Mill (1871), who first argued that cooperative production will be necessary to mitigate the uncontrolled selfishness encouraged by a society based on individual-level utilitarianism. According to Mill, a shift from investor-owned firms to organizations owned and operated by workers has the potential to transform the workplace from a setting characterized by antagonism to a "school of sympathy" that would enable workers to feel part of something greater. Mill ranks cooperative production and the emancipation of women as the two great changes that will regenerate society. Hence, if production were to become cooperative, a moral revolution would ensue. Mill also thought that cooperatives held an advantage over state-led organizations or other socialist institutions because they were able to compete against traditional firms. In fact, his criticism against socialism is that it undervalued competition as a useful stimulus to activity and efficiency. Oakeshott echoes Mill's arguments in criticizing Marx and Engels (1848), who labeled cooperative organizations as "dwarfish" and "utopian ventures doomed to failure in a hostile sea of capitalism," as well as Hardin's (1968) proliberal dissertation on the tragedy of the commons. As a result, it remains unclear whether Oakeshott advances an alternative form of socialism or rather "workers' capitalism." What is clear is that Oakeshott pushed the notion that if workers became stakeholders, if the gap between management and labor vanished, and if effort and profit were shared for the common good, human beings would be happier, freer, and possibly better off. However, he also recognized that cooperatives were difficult to create and not always successful. In line with Marshall (1971) and Olson (1965), he acknowledged that the experience of workers' co-ops was not altogether convincing but argued that this was not because such ventures were doomed but because their implementation was often misguided. In other words, Oakeshott endorsed the qualified optimism of Marshall, who suggested that strong emphasis

[1] http://social.un.org/coopsyear/

[2] http://www.economist.com/node/18359920. Note that devolution is different from decentralization. *Decentralization* means transfer of power from the core to the periphery within the government structure; *devolution* means transfer of power from the state to the civil society (Meinzen-Dick 2009).

[3] IASC conference on the "Commons," India, 2011.

must be put on conditions necessary for cooperative success and that the single most important condition is that of good leadership.

In making his case for cooperatives, Oakeshott partly draws on his experience in Africa, where he actually worked to promote and support the development of farmers' and other forms of cooperatives for almost a decade. In fact, recent studies (Develtere, Pollet, and Wanyama 2008; World Bank 2007) show that cooperatives, and in particular farmer-based organizations (FBOs), are long-standing and widespread on the African continent. Yet their overall performance remains highly contested (World Bank 2007; Rondot and Collion 2001), and it is often unclear what these organizations actually do in terms of collective activities, as many of them appear to be dormant, much like empty shells (Meinzen-Dick 2009). Available literature suggests that FBOs can fail to mobilize collective action due to either shirking (Hoff and Stiglitz 1993) or conflicts within the organization (Karantininis and Zago 2001). Clearly, the problems hindering collective action can vary significantly across space and time, increasing the complexity of the problems significantly and inducing researchers and policymakers to focus their attention on a particular problem (Ostrom 2004). As a result, problem-specific analyses and uniform or blanket policies tend to be pervasive, favoring collective action in some cases but discouraging it in others, or promoting collective initiatives today and suppressing them tomorrow. For this reason, Ostrom (2004) argues that further research is needed to look inside cooperative organizations, which should no longer be seen as "black boxes," and investigate the complexity associated with collective action problems so as to identify diverse and selective support strategies.

This study aims to do so by analyzing primary data on 500 Ghanaian FBOs collected through qualitative–quantitative surveys and games. Drawing upon the structure-conduct-performance (SCP) framework from industrial organization theory, we find that environments characterized by a functioning market, basic infrastructure, and critical mass (in terms of population size) are important pre-existing conditions for collective action. Yet, this study shows that there is no one direct intervention that can universally promote collective action. This is because collective action can be constrained by additional problems, with some FBOs facing internal issues of cohesion and others confronting access barriers to markets. Both problems are associated with poor leadership, defined by the lack of either motivation or capacity to keep organizational structure and conduct well aligned. While cohesion problems require the facilitation and coordination of participatory appraisals and learning within an FBO; access problems call for leaders to grant additional economic incentives as well as decisional authority and autonomy.

This paper proceeds as follows: Section 2 presents the study area and the methods used for data collection. In Section 3 we define an SCP framework amended to fit with existing cooperative theory. In Section 4 we describe the available data. Econometric results are presented and discussed in Section 5, and conclusions and policy implications are drawn in Section 6.

2. STUDY AREA

In rural Ghana, cooperative organizations can be traced back to precolonial times, when neighboring farmers used to provide each other with mutual support through exchange of labor (*nnoboa*), credit (*susu*), or both (Onumah et al. 2007; deGraft-Johnson 1958). In parallel with these indigenous collective practices, British colonialism was instrumental for the introduction and diffusion of formal cooperative organizations (Wanyama, Develtere, and Pollet 2008). However, during the colonial period as well as for most of the post-independence period, agricultural cooperatives became a means of power centralization, ensuring rural order and the extraction of natural resources and agricultural products for the European market (Wanyama, Develtere, and Pollet 2008; Onumah et al. 2007; Grischow 2006; Hussi et al. 1993). Not until the end of the 1980s did state-controlled cooperatives start to dissolve under growing global pressure for structural reforms toward liberalization and privatization. However, in some parts of Ghana, the dismantling of cooperatives has been tentative at best, while in others it has been hasty and seldom followed by the rise of viable agribusiness. Consequently, at the onset of the new millennium, Ghana is witnessing a new wave of rural cooperative organizations, commonly referred to as farmer-based organizations (FBOs). Although FBOs continue to be founded on cooperative principles (such as democratic decisionmaking based on the principle of *one member, one vote*), the name change was meant to indicate a break from the widely discredited and highly centralized cooperative model of the past. The rise of FBOs has in fact been partly driven by decentralized initiatives or even grassroots movements (Wanyama, Develtere, and Pollet 2008; Onumah et al. 2007; Grischow 2006; Hussi et al. 1993), inducing the Ghanaian government to deregulate FBOs through a revision of the long-standing national cooperative legislation (Tsekpo 2008).

In 2010, about 10,000 rural organizations were counted in rural Ghana (Salifu, Francesconi, and Kolavalli 2010). The rapid rise of FBOs is mainly due to nongovernmental organizations (NGOs), international organizations, and private investors who increasingly see rural collectivities as key partners to achieve agribusiness development and governance decentralization objectives (Salifu, Francesconi, and Kolavalli 2010). Between 2000 and 2007, the World Bank alone allocated more than US$9 million to the development of Ghanaian FBOs (AgSSIP 2007a,b,c). In addition to their increasing number, FBOs appear to be involved in an increasingly diverse range of collective activities. Ghana's Ministry of Food and Agriculture (MoFA) currently distinguishes between production, processing, marketing, and multipurpose FBOs (Salifu, Francesconi, and Kolavalli 2010). Considerable variability is also observed in terms of membership: some FBOs are composed of only women members; others, internally displaced minorities, religious brotherhoods, schoolmates, and so forth. Despite the growing complexity of Ghana's rural cooperative movement, one-size-fits-all policies seem to remain widespread throughout the country. For example, Ghana's Millennium Development Authority (MiDA) requires all FBOs willing to participate in its Millennium Challenge Account Program to adjust their size to approximately 50 members, attend training sessions on cooperative business principles, register with the MoFA, open a collective bank account, develop a written constitution or bylaws, and develop a system for bookkeeping (financial records and meeting minutes; Salifu, Francesconi, and Kolavalli 2010).[4] Eligible FBOs are then granted subsidized inputs, equipment, and credit.

To better understand organizational complexity at the local level and reconcile it with policymaking efforts, one of the authors collected data on 500 FBOs throughout rural Ghana (sample sites are depicted in Figure A.1 in the Appendix) during the first quarter of 2010. The sample was based on secondary information made available by governmental and nongovernmental agencies to reflect observed heterogeneity in the national population of FBOs. Therefore, the sample used in this study is not random and may not be fully representative of the actual population of Ghanaian FBOs and agricultural co-ops. Data were collected to maximize heterogeneity of agroecological zones, regional administrations,

[4] MiDA is a joint program of the governments of Ghana and the United States (http://mida.gov.gh/site/).

district-level institutions, and infrastructure as well as organizations' age, membership size, and principal collective activities undertaken.

Primary data were collected at both the group and individual levels by a team of 17 students from three Ghanaian universities (Accra, Tamale, and Kumasi) and equipped with digital questionnaires and games uploaded onto smartphones.[5] Detailed quantitative and qualitative data on the history and current characteristics of FBOs were obtained through focus group discussions. Additional interviews and games were then conducted at the individual level with three randomly selected members from each FBO. Each of the three members was first asked, "What is the major problem faced by your organization?" and was subsequently asked to play a simple game combining classic risk and dictator game theories (Kugler et al. 2007; Bolton, Katok, and Zwick 1998; Binswanger 1980). The rules of this game are explained in detail in Box A.1 (in the Appendix). Individual interviews and games were conducted to tease out members' perceptions, motivations, and preferences in a standardized setting, minimizing external interference.

[5] The software that was used to design and administer questionnaires and games is mQuest (http://www.cluetec.de/cms/front_content.php?idcat=72&lang=5).

3. THEORETICAL FRAMEWORK

The framework applied in this study draws upon the structure-conduct-performance (SCP) paradigm pioneered by Bain (1951), which is a pillar of classic industrial organization theory. This framework states that the *structure* of an industry—given by the degree of concentration of market power among firms—determines whether the industry's *conduct* is collusive (that is, equitable) or competitive (efficient), and this in turn explains the *performance* of the industry in terms of its value added and innovation rate (Kadiyali, Sudhir, and Rao 2001). In this study, we apply the SCP framework to clusters of farm households, namely FBOs, as opposed to industrial clusters of firms. To adapt the SCP framework to cooperative organizations, we use several different schools of thought including development and neo-institutional economics, sociology and anthropology, industrial organization and business management, and political science.

Performance

SCP models are commonly criticized for their choice of performance indicators, because organizational value added and innovation rates are somewhat hard to measure (Kadiyali, Sudhir, and Rao 2001). In rural producer organizations, quantitative performance indicators are particularly hard to come by. We therefore focus our discussion on more qualitative indicators of performance as identified in the literature. Following the approach developed by neo-institutional economists (Kirsten, Karaan, and Dorward 2009; Meinzen-Dick 2009; Varughese and Ostrom 2001), we take the stated incidence of collective action as a key qualitative indicator of organizational performance. In particular, we infer the presence or absence of collective action on the basis of the collective history narrated by each focus group involved in this study. Drawing from modern agribusiness theory (Cook and Chambers 2007), we distinguish collective histories characterized by rent-seeking or income-generating motives. This dichotomy in group behavior essentially aims at capturing whether or not members have been making a significant contribution to the common cause of the FBO.

As explained by Cook, collective action essentially depends on whether group members put *skin in the game*.[6] Furthermore, following Ostrom's (2004) recommendation, we also investigate organizational performance by looking at the incidence and types of collective action problems. Various dichotomies of collective action problems have been identified. Within development economics, the empirical work of Bernard et al. (2008b) in Senegal and Burkina Faso, for example, advances a distinction between community-oriented and market-oriented producer groups, with the former involved mainly in solving social issues and the latter mainly in overcoming access barriers to input procurement and output commercialization. A similar dichotomy is identified by Francesconi and Heerink (2010), who distinguish Ethiopian cooperative organizations on the basis of livelihood- and business-enhancing purposes. Finally, according to Ruben (1997), cooperative organizations are driven by either cost-saving or risk-sharing objectives, reflecting the existence of problems associated with, respectively, high transaction costs and limited economies of scale or risk aversion and limited economies of scope. Among political economists, Karantininis and Zago (2001) identify conflicts among members as a common reason for collective inaction, which typically results from the presence of free riders within a group. Hoff and Stiglitz (1993) instead consider shirking, typically resulting from a pervasive commitment to prevent any sort of free riding, as a major problem faced by cooperative organizations.

[6] Cooperating out of Poverty, workshop organized by the French National Institute for Agricultural Research (INRA) and Wageningen University, Montpellier,France, 2007.

Structure and Conduct

Neo-institutional economists (Varughese and Ostrom 2001) base the structure of cooperative organizations on the degree of heterogeneity in members' characteristics, such as location, wealth, and sociocultural background. Agribusiness scholars (Cook and Chambers 2007) stress that heterogeneity in membership is more appropriately captured by differences in members' socioeconomic preferences. In this study we take the latter approach and use games to measure members' preferences regarding socioeconomic risk. We justify this by postulating that preferences may be a more precise measure of behavior than observable characteristics. In particular, the hypothesis emerging from recent work in the fields of development economics (Francesconi and Heerink 2010; Bernard and Spielman 2009) and political economy (Michalopoulos and Papaioannou 2010; Platteau 2007) is that community-level organizations tend to be highly homogeneous in rural Africa in terms of members' characteristics (especially landholding) and preferences, which perpetuates kinship and tribalism. With regard to organizational conduct, development economists (World Bank 2007) emphasize that cooperative rules of conduct depend on classic equity–efficiency dilemmas. When equity preferences prevail, the value added by an organization (or equity capital) is equally distributed among members. When efficiency prevails, redistribution is instead proportional to individual effort. According to the World Bank (2007), African FBOs are typically founded on values of equity. In this study we also capture collective preferences for either equity or efficiency through games.

An interesting parallel can be drawn between African FBOs and the traditional communities described in classic anthropological theory. According to Durkheim (1893), traditional communities are characterized by mechanic solidarity toward the next of kin, underpinning socioeconomic homogeneity. In contrast, modern communities are more heterogeneous because they are characterized by a more organic type of solidarity, based on the interdependence that arises from specialized work and professional complementarities. The application of this theory to producer cooperatives is presented by Sykuta and Cook (2001), who argue that these organizations usually evolve from traditional groups, in which residual claim rights are vaguely defined and equally allocated among members, into new-generation cooperatives, in which residual claim rights are well defined and proportional to members' patronage and investments. As such, given that African FBOs fall mainly in the traditional category, we can assume that something must be impeding their modernization.

The evolution of a cooperative organization has been shown to comprise consecutive life cycles (Francesconi and Ruben 2008; Cook and Chambers 2007). After being established, cooperative organizations typically face a period of growth and good performance. However, over time, cooperative organizations tend to face a downturn associated with changes in either the external or the internal environment. External changes are associated mainly with increased competition in the marketplace, which induces more efficient conduct in cooperative organizations, increasing the likelihood of shirking. Internal changes are instead typically related to increased heterogeneity in members' socioeconomic preferences, due to either expansion in membership or changes in members needs over time, which inevitably increases the likelihood of disagreement, tension, and conflict among members. This means that organizational evolution from traditional to modern depends on the willingness and capacity of cooperative leaders to confront external and internal changes that would compromise collective action. According to both neo-institutional economists (Varughese and Ostrom 2001) and modern agribusiness scholars (Cook and Chambers 2007), the role of leaders of cooperative organizations is essentially to find a way to keep the degree of heterogeneity in members' socioeconomic preferences (structure) aligned with organizational conduct (equity or efficiency).

Environment

A weakness of classic SCP models is that they tend to pool different firms under the same industry and disparate industrial clusters in the same sample, thereby affecting the overall meaningfulness of the results. To address this criticism stemming from the imposition of nonrandom clustering, researchers have commonly resorted to using regression models that include fixed effects (Boulding and Staelin 1993; Prescott, Kohlil, and Venkatraman 1986). Although fixed effects can control for some degree of error in comparing industries across space, the problem associated with the selection of firms into an industry remains arguably unresolved (Kadiyali, Sudhir, and Rao 2001). This, however, may not be the case for FBOs, for which membership is based on farmers' self-selection. The selection of firms into an industry is not explicit, allowing for some degree of arbitrariness in the clustering process; however, the participation of farmers in an FBO is conditional upon their voluntary decision, thus minimizing the probability of random clustering.

It follows that the introduction of fixed effects should be sufficient in our study to derive meaningful interpretations of results. In particular, we specify fixed effects on the basis of exogenous environmental factors that are relevant to collective action and cooperative policy. As postulated by twentieth-century organizational scholars (Sexton and Iskow 1988; Sexton 1986; Staatz 1987), collective action emerges to confront key market challenges faced by individual producers who retain limited bargaining power and economies of scale and scope. It follows that collective action may not spontaneously emerge in the context of missing markets, where subsistence strategies based on the consumption of own agricultural produce tend to prevail. This is expected to be the case in the many remote and disconnected rural areas of Africa, where collective action may be further constrained by low population density and thus the lack of critical mass, as explained by Granovetter (1978).

Neo-institutional economists further emphasize that in the absence of external incentives, individuals do not always self-organize (Varughese and Ostrom 2001). This may be particularly true in rural Africa, where individuals may not be able to bear the unredeemable costs associated with establishing an organization (Kolavalli and Brewer 1999). Varughese and Ostrom (2001) also argue that organizational start-up depends not only on the provision of economic incentives but also on the degree of awareness, capacity, autonomy, and authority of local leaders. However, political economists (Platteau 2004) suggest caution regarding governance strategies aimed at empowering local leaders, as these can exacerbate elite capture. Finally, Bruns and Bruns (2004) present several cases in which the necessary level of cohesion to start an organization was generated through community facilitators using a participatory approach.

4. DATA DESCRIPTIVES

Quantitative Data

Quantitative data collected at the group level reveals that the average FBO in our sample is relatively small (38 members) and newly established (seven years old). However, these average characteristics hide significant variability—our sample includes also a few large (up to 500 members) and well-established (50 years of age) FBOs. In addition to these general characteristics, the quantitative data are also used to describe the environment in which Ghanaian FBOs operate (Table 4.1). First, we observe that the Eastern and Volta regions are the most represented in our sample. This is because FBOs are particularly concentrated in these regions, which have historically received most external support for organizational development (Salifu, Francesconi, and Kolavalli 2010). Second, we observe that although most FBOs (72 percent) are based in districts with basic infrastructure (water pipelines, telephone networks, and electricity grids), only 34 percent of these operate in districts with a land market, that is, where land can be purchased and sold. Third, Table 4.1 also shows that the average Ghanaian FBO is found in a relatively small village (approximately 12,000 people) located 12 miles away from the closest MoFA office. Finally, we observe that the majority of FBOs in our sample were newly established—rather than re-established through the merger or division of former organizations—upon externally facilitated participatory appraisals and the provision of training on cooperative organization. Less than half of groups were established through the provision of economic incentives to local leaders. However, for the majority of groups, no authority or autonomy was vested in these leaders, particularly in terms of identification and selection of members.

Table 4.1—Organizational environment

Variable (499 observations)	Mean	Std. Dev.	Min.	Max.
Greater Accra Region	0.08	0.28	0	1
Central Region	0.10	0.30	0	1
Volta Region	0.22	0.41	0	1
Eastern Region	0.29	0.45	0	1
Northern Region	0.19	0.39	0	1
Brong Ahafo Region	0.12	0.33	0	1
Existence of a land market within the district	0.34	0.47	0	1
Existence of basic infrastructure at the district level	0.72	0.45	0	1
Population size at the village level	12,288	57,908	6	700,000
Distance from FBO to nearest MoFA office (miles)[7]	11.73	14.42	0	200
FBOs/co-ops established upon provision of incentives to the leader(s)	0.45	0.50	0	1
FBOs/co-ops established upon provision of group training on cooperative principles	0.62	0.49	0	1
FBOs/co-ops established by members selected by the leader(s)	0.30	0.46	0	1
FBOs/co-ops re-established from former organization(s)	0.18	9.38	0	1

Source: Quantitative data collected for this study.

[7] The distance is set to be equal to zero when the MoFA office and the FBO are located in the same town.

Qualitative Data

Historical information recorded through focus group discussions shows that the average FBO in our sample engages in almost three collective activities and deals with two agricultural commodities. Maize is clearly the most important commodity. In fact, more than 50 percent of groups produce, process, or trade maize. Other important commodities include horticulture, root crops (cassava and yam), livestock, rice, export crops (palm oil, cocoa, cotton, and others), and fruits. In terms of collective activities, the majority of FBOs were involved in labor exchange (*nnoboa*) or rotating credit schemes (*susu*). In addition to these traditional collective activities, many FBOs also report involvement in collective farming, collective input procurement and output processing and commercialization, community work (village upkeep and infrastructure development), and external credit attainment. Hence, regarding the distinction made by Bernard et al. (2008b) and Francesconi and Heerink (2010) between community- and livelihood-oriented organizations and market-oriented organizations, we observe that the latter are far less prominent in our sample. Given these general characteristics, the qualitative data available to this study are used to define the performance of Ghanaian FBOs (Table 4.2).

Table 4.2—Organizational performance

Qualitative Performance Indicators	Options	Observations	Percentage	Indicator Value
History of collective action (as narrated by focus groups)	Collective action	188	38%	1
	No collective action	311	62%	0
Organizational problems (as perceived by members)	All 3 members indicating cohesion problems	35	7%	3
	2 members indicating cohesion problems	36	7%	2
	2 members indicating access problems	58	12%	1
	All 3 members indicating access problems	371	74%	0

Source: Qualitative data collected for this study.

Table 4.2 shows that according to the information collected on an FBO's past, only 38 percent of organizations have so far managed to mobilize collective action, defined on the basis of member contributions (in cash or kind) to a common cause (*skin in the game*). This observation is in line with Meinzen-Dick (2009), who argues that most African cooperative organizations resemble empty shells. Member perceptions reveal that limited incidence of collective action can be attributed to a major problem faced by FBOs, which relates to barriers that prevent access to external credit, equipment, and inputs. Table 4.2 shows that for 371 of the FBOs in our sample, all members interviewed (three in each FBO) indicated the presence of access problems; and in 58 FBOs, two out of three members indicated the presence of similar problems of access. Thus, 86 percent of the FBOs appear to be mainly affected by problems of access to external resources, and the remaining 14 percent face problems of internal cohesion such as tension, disagreement, and eventually conflict among members or between members and leaders. These findings reinforce previous evidence highlighting the limited incidence of market-oriented organizations and echo the concerns of Bernard et al. (2008a) and Francesconi and Heerink (2010) regarding the lack of collective entrepreneurship in rural Africa. Using Ruben's (1997) terminology, we can also conclude that rural organizations in our sample are expected to be far more successful in pursuing risk-sharing objectives than cost-saving objectives.

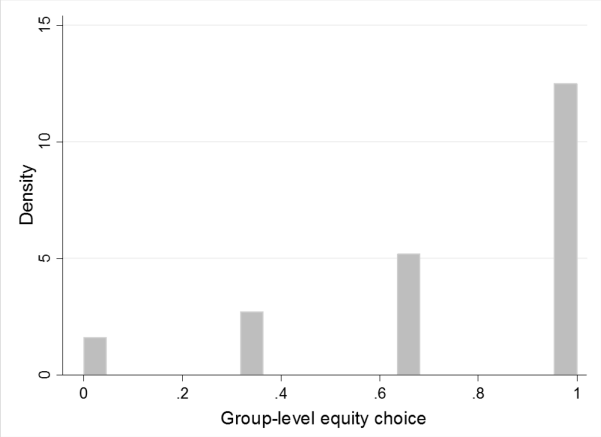
Game Outcomes

Both organizational structure and conduct are derived from the outcomes of a risk–dictator game played with three randomly selected members from each FBO. The idea behind this game is to reproduce basic organizational dynamics in an artificial and standardized setting (see Box A.1 in the Appendix). In particular, we assume that collective rules of conduct are defined by individual preferences. In other words, the choice of a group with regard to equity or efficiency for the internal redistribution of the collective endowment (or equity capital) depends on whether the majority of individuals prefer equity or efficiency. To tease out such rules of conduct from a game setting, we hypothesize that preferences for sharing individual wealth (equity choice) or not (efficiency choice) are influenced by the heterogeneity in risk preferences plus a random effect (a coin toss). In the literature, the game described above is normally separated into a risk and a dictator game (Kugler et al. 2007; Bolton, Katok, and Zwick 1998; Binswanger 1980). In combining risk and dictator games, we introduced a confounding effect associated with the fact that the propensity to share may be influenced by the size of participants' own payoff relative to the given range of possible payoffs. However, this confounding effect is expected to add a collective dimension to classic risk and dictator games, which are instead designed to measure individual behavior. Hence, this confounding effect is interesting in and of itself and determined by the relationship between heterogeneity in members' socioeconomic preferences and group conduct (that is, collective willingness to share).

Game outcomes are depicted in Figures 4.1 and 4.2. Figure 4.1 shows the distribution of group-level choices with regard to equity and efficiency options. In most cases we found a consensus among the group members involved in the game in expressing a preference for equity (value of 1); a consensus in adopting efficiency (value of zero) was the least observed. In some groups, consensus was not reached among the three members: either two members chose equity and one chose efficiency (value of 0.66), or two members chose efficiency and one chose equity (value of 0.33). Figure 4.2 describes the variance in risk preferences between the three members of each group involved in the game. The distribution presented in Figure 4.2 is skewed toward zero, showing that most groups display homogeneous risk preferences. These findings are in line with the evidence reported by the World Bank (2007) that remarks on the prevalence of equity and solidarity within African FBOs, as well as with numerous and recent studies (Francesconi and Heerink 2010; Michalopoulos and Papaioannou 2010; Bernard and Spielman 2009; Platteau 2007) that emphasize the prevalence of homogeneous community organizations throughout rural Africa.

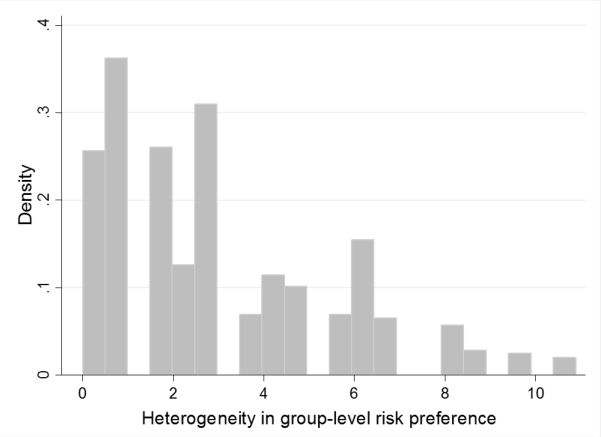
Given the outcomes of the risk–dictator game described above, we can now distinguish four organizational types of groups on the basis of particular combinations of structure and conduct: (1) efficiency-based conduct (Figure 4.1: $x < 0.5$) and homogeneous structure (Figure 4.2: $x \leq 6$); (2) equity-based conduct (Figure 4.1: $x > 0.5$) and homogeneous structure (Figure 4.2: $x \leq 6$); (3) efficiency-based conduct (Figure 4.1: $x<0.5$) and heterogeneous structure (Figure 4.2: $x > 6$); and (4) equity-based conduct (Figure 4.1: $x>0.5$) and heterogeneous structure (Figure 4.2: $x > 6$). The prevalence of each of these groups is given in Table 4.3. Drawing upon the work of Cook and Chambers (2007), Varughese and Ostrom (2001), and Durkheim (1893), we postulate that only types 2 and 3 are expected to be active because their structure and conduct are aligned. For the other groups, structure and conduct seems to be misaligned: The combination of equity-based conduct with a heterogeneous structure is expected to create problems of free riding and thus disincentives to invest in the common cause and compete in the marketplace. On the other hand, the combination of efficiency-based conduct with a homogeneous structure may create problems of cohesion. It is important to note that aligned groups are mainly groups with a homogeneous structure and equitable conduct, further stressing the argument that traditional organizations tend to prevail in rural Africa. Finally, Table 4.3 shows that misalignment due to the coexistence of equity-based conduct with a heterogeneous group structure is much more prevalent than misalignment due to efficiency-homogeneity combinations. This finding underscores the conclusion drawn in the previous section—that access problems are far more common than cohesion problems among Ghanaian FBOs.

Figure 4.1—Organizational conduct



Source: Game data collected for this study.

Figure 4.2—Organizational structure



Source: Game data collected for this study.

Table 4.3—Organizational typologies

	Structure	
Conduct	*Homogeneous*	*Heterogeneous*
Efficiency	Group 1 N = 66 Misaligned	Group 3 N = 31 Aligned
Equity	Group 2 N = 257 Aligned	Group 4 N = 146 Misaligned

Source: Game data collected for this study.

5. RESULTS

The results from a probit regression of collective action performance of Ghanaian FBOs on structure–conduct alignment or misalignment and the policy environment are given in Table 5.1. The table shows that collective action is more prevalent when organizational structure and conduct are aligned, that is, when structure is homogeneous and conduct is equitable (type 2 in our study) or when structure is heterogeneous and conduct is efficient (type 3 in our study). Our findings lend support to modern institutional (Varughese and Ostrom 2001) and organizational (Cook and Chambers 2007) theory, which stresses the importance of well-aligned structure and conduct for performance. Furthermore, we also refine this theory by validating the definition of organizational alignment given in the previous section. Our findings further emphasize that organizational alignment is defined by the coexistence of either a homogeneous structure and equity conduct or a heterogeneous structure and efficient conduct.

Table 5.1—Probit regression explaining the incidence of collective action

Variables	Collective action (1 = yes)
Aligned FBOs (types 2 and 3)	0.24 (0.12)**[a]
Greater Accra Region	0.02 (0.27)
Central Region	–0.06 (0.26)
Volta Region	0.31 (0.21)
Eastern Region	–0.01 (0.21)
Northern Region	0.12 (0.23)
Existence of a land market within the district	0.23 (0.13)*
Existence of basic infrastructure at the district level	0.32 (0.16)**
FBO established upon provision of incentives to the leader(s)	–0.19 (0.13)
FBO established upon provision of group training on cooperative principles	–0.17 (0.13)
Distance from FBO to nearest MoFA office (miles)	–0.01 (0.01)
Log of population size at the village level	0.07 (0.04)*
FBO established by members selected by the leader(s)	0.10 (0.13)
FBO re-established from former organization(s)	–0.12 (0.16)
Pseudo R-squared	0.05
Log-pseudo-likelihood	–312.39
N	498

Source: Primary data collected for this study.
Notes: [a] Robust standard errors in parentheses.
* Denotes significance at the 10% level.
** Denotes significance at the 5% level.

Table 5.1 also shows that collective action is more likely to occur in districts characterized by existing land markets and basic infrastructure as well as in larger villages. These findings are in line with conclusions drawn by twentieth-century organizational scholars (Sexton and Iskow 1988; Sexton 1986; Staatz 1987)—that collective action cannot be expected to emerge in missing or thin markets where subsistence through consumption of own agricultural produce may be the only realistic livelihood strategy. Finally, we find that none of the recall variables that capture the policy environment, which prevailed at the time of the establishment of Ghanaian FBOs, explain collective action. The limited role of policies prevalent at the time of establishment also explains the particularly modest goodness-of-fit of the regression. Clearly, our results (or lack of results) regarding the policy environment suggest that no single policy option can be expected to be universally conducive to collective action (see also Ostrom 2004).

Table 5.2 presents the results of two ordered logit regressions for the indicator values of cohesion and access problems faced by Ghanaian FBOs as given in Table 4.2. In this regression, the variable distinguishing aligned from misaligned groups is further decomposed to capture the effect of each organizational type on collective action problems. Hence, we run this regression twice, first including the two misaligned typologies (1 and 4) and then the two aligned ones (2 and 3). By doing so, we observe that aligned organizations are not significant in explaining collective problems, as expected. The two misaligned typologies are highly significant but with opposite signs. This means that the combination of homogeneous structure and efficient conduct raises problems of internal cohesion. On the other hand, FBOs characterized by a heterogeneous structure and equity-based conduct are more likely to face problems of access to external resources. These findings confirm and further streamline the hypothesis emerging from the work of Hoff and Stiglitz (1983) and Karantininis and Zago (2001), that collective action is commonly affected by shirking and conflicts. Conflicts of interest are expected to result from problems of free riding, typical for organizations characterized by equity conduct and heterogeneous structure. Conflicts are also expected to result in decreased market competitiveness, affecting access to external resources. On the other hand, shirking is expected to result from a lack of professional complementarities and incentives to collaborate, which are typical for organizations characterized by efficient conduct and homogeneous structure. Shirking is also expected to create organizational problems by affecting internal cohesion.

Table 5.2—Ordered logit regression explaining cohesion and access problems in FBOs

Variables	Collective action problem (0–3) 0 = maximum access problem 3 = maximum cohesion problem	
Organizational type 1 (homogeneous structure, efficient conduct)	0.79 (0.30)**[a]	—
Organizational type 2 (homogeneous structure, equitable conduct)	—	0.08 (0.22)
Organizational type 3 (heterogeneous structure, efficient conduct)	—	0.07 (0.29)
Organizational type 4 (heterogeneous structure, equitable conduct)	–0.59 (0.27)**	—
Greater Accra Region	1.43 (0.58)*	1.40 (0.55)**
Central Region	1.59 (0.51)**	1.50 (0.49)**
Volta Region	1.56 (0.48)**	1.39 (0.47)**
Eastern Region	1.42 (0.47)**	1.26 (0.46)**
Northern Region	0.66 (0.51)	0.67 (0.51)
Existence of a land market within the district	–0.39 (0.24)*	–0.29 (0.24)
Existence of basic infrastructure at the district level	–0.35 (0.26)	–0.33 (0.26)
FBO established upon provision of incentives to the leader(s)	0.49 (0.25)*	0.43 (0.25)*
FBO established upon provision of group training on cooperative principles	–0.63 (0.25)**	–0.57 (0.24) **
Distance from FBO to nearest MoFA office (miles)	–0.01(0.01)	–0.00 (0.01)
FBO established by members selected by the leader(s)	0.90 (0.22)**	0.95 (0.22)**
Log of population size at the village level	0.02 (0.01)	0.01 (0.07)
FBO re-established from former organization(s)	0.53(0.27)*	0.52 (0.26)*
Pseudo R-squared	0.12	0.10
Log-pseudo-likelihood	–389.47	–397.41
N	498	498

Source: Primary data collected for this study.
Notes: [a] Robust standard errors in parentheses.
* Denotes significance at the 10% level.
** Denotes significance at the 5% level.

Table 5.2 also shows that our recall variables capturing the policy environment that prevailed at the time of establishment of Ghanaian FBOs are significant in explaining the problems associated with collective action. Our findings suggest that problems of internal cohesion are found mainly in FBOs that were re-established on the base of a pre-existing organization, those that were granted economic incentives at the time of establishment, and those for which authority or autonomy was given to local leaders for establishment. In contrast, problems of cohesion are less prevalent in FBOs that were newly established upon participatory appraisals and the provision of training on cooperative principles. We find opposite results with regard to determinants of problems of access. Our results suggest that the empowerment of local leadership increases the likelihood of cohesion problems but decreases the incidence of access problems, while participatory appraisals and training increase the incidence of access problems and decrease the likelihood of cohesion problems. These findings reinforce conclusions drawn by Ostrom (2004), that different and opposing collective action problems require distinct coping strategies. More importantly, our results contribute to a specification—albeit rather general—of alternative policy options that can be implemented to address problems of collective action. In particular, we conclude that in FBOs characterized by access problems, equitable conduct, and heterogeneous structure, co-op leaders need to be empowered, allowing for a certain degree of elite capture. On the other hand, in FBOs characterized by cohesion problems, efficient conduct, and homogeneous structure, participatory learning and action can help to counteract excessive elite capture. Finally, it should be noted that most regional dummy variables included in the regression are significant and positive. These findings suggest that cohesion problems are particularly concentrated in the southern regions included in our sample (Greater Accra, Central, Eastern, and Volta), as compared with the Brong Ahafo (the regional dummy excluded from the regression) and Northern regions. In other words, this finding can also be interpreted in the sense that access problems increase as the distance between an FBO and Accra's market increases.

Overall, it is important to emphasize that we expect the econometric analyses presented in this section to not be subject to endogeneity bias, which commonly affects classic SCP models. As mentioned, the effects of structure, conduct, and governance on performance are usually difficult to identify in SCP models, especially when available data are obtained from a cross-section survey (Kadiyali, Sudhir, and Rao 2001), as is the case for this study. One solution that has been explored in the past is the use of instrumental variables. However, good instruments are difficult to find, and modern economic theory is raising growing concerns about the validity of instrumental variable approaches (Imbens 2009; Duflo, Glennerster, and Kremer 2007). Therefore, the approach used in this study to overcome the endogeneity problem is based on the use of both recall variables, reconstructing the process that led to the establishment of an organization and inferring collective structure and conduct from an artificial setting (the game), which is clearly different from the real organizational scenario. Clearly, the use of recall and game variables minimizes endogeneity problems on one hand but affects goodness of fit on the other. Therefore, the regressions presented above are characterized by generally low R-square.

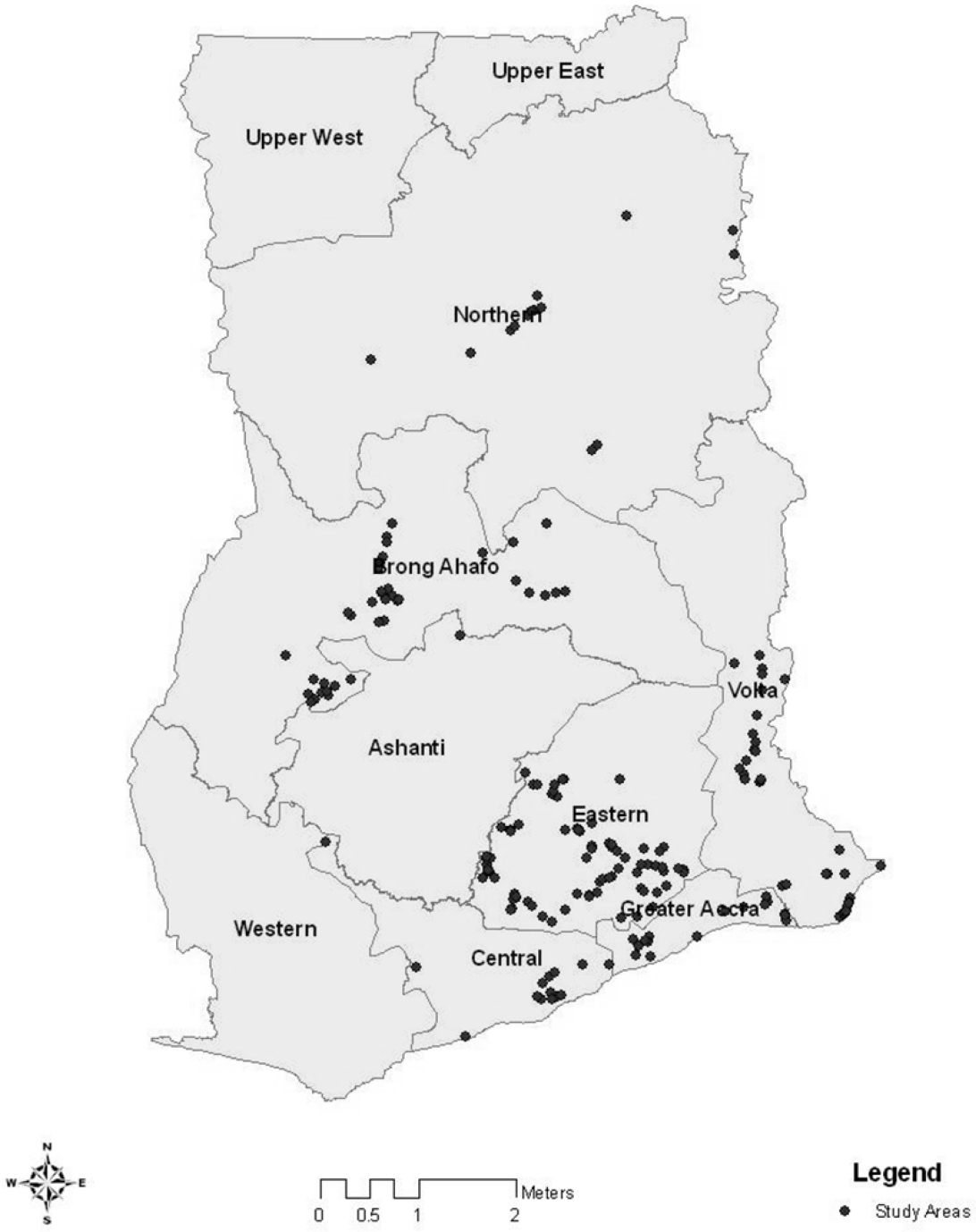
6. CONCLUSIONS AND IMPLICATIONS

Ghana's largely rural population is to a significant extent organized into farmer-based organizations (FBOs), which are increasingly seen as important entry points for promoting agribusiness development and governance devolution. However, the message emerging from this study is that the optimism of will, arising from the UN's declaration of 2012 as the International Year of Cooperatives, needs to be qualified by some pessimism of intellect. This study shows that, in fact, many if not most Ghanaian FBOs are small, newly established, and failing to mobilize any sort of collective action. Most Ghanaian FBOs appear to suffer from problems of market access due to conflicts of interest among members. Fewer FBOs instead face problems of cohesion due to pervasive shirking among members. These are clearly different problems that need to be addressed through different strategies. However, the prevalent policy regarding rural organizations in Ghana appears to be mainly directed at addressing problems of cohesion by counteracting elite capture (that is, socioeconomic inequality). As a result, access problems are expected to continue to increase.

The recommendation emerging from this study is that to increase collective action, Ghanaian cooperative policy needs to be diversified by recognizing that different types of FBOs face different problems. In particular, this study identifies four typologies into which FBOs currently operating in rural Ghana can be classified. Distinctions are made on the basis of membership structure and rules of conduct, revealing the existence of FBOs characterized by (1) homogeneous membership and efficient conduct, (2) homogeneous membership and equity-based conduct, (3) heterogeneous membership and efficient conduct, and (4) heterogeneous membership and equitable conduct. We argue that structure and conduct are well aligned for types 2 and 3, allowing for collective action to materialize. In contrast, structure and conduct are misaligned for types 1 and 4, creating collective action problems. While type 1 faces problems of cohesion, type 4 suffers from problems of access. To address the much more common problem of access policymakers ought to diversify their support for collective action by granting more economic incentives, authority, and autonomy to local leaders (that is, allow for some degree of elite capture) to reactivate existing FBOs characterized by heterogeneous membership structure and equity-based conduct. By doing so, Ghanaian FBOs are expected to gain competitiveness in the marketplace, which is essential for their sustainable development over time.

APPENDIX

Figure A.1—Map of sample sites



Source: Google Latitude.

Box A.1—Risk–dictator game

In this game participants can gain some real money but cannot lose any of their own, as per the "do no harm" policy applied by the International Food Policy Research Institute for experiments involving human beings. All participants were asked to play the game twice; the first was played with negligible amounts of money at stake for demonstration purposes. Each game was played according to the following steps:

1. Ask each participant to pick one of the following risk options (0–7, Table A.1) and make sure they understand the potential gains associated with each option:
2. Toss one coin for all participants (the outcome of the coin toss is the same for all participants).
3. Before handing out the money, ask each participant whether he/she would prefer to share his/her payoff equally with the other participants (equity preference) or not (efficiency preference).
4. Share the payoff according to the equity–efficiency preference indicated by the majority (at least two) of the participants.

Table A.1—Risk options for gaming

First Game (trial)			Second Game		
Indicator	Heads (lose)	Tails (win)	Indicator	Heads (lose)	Tails (win)
0	0.5 GHC	0.5 GHC	0	2.5 GHC	2.5 GHC
1	0.45 GHC	0.95 GHC	1	2.25 GHC	4.75 GHC
2	0.4 GHC	1.2 GHC	2	2 GHC	6 GHC
3	0.35 GHC	1.25 GHC	3	1.75 GHC	6.25 GHC
4	0.3 GHC	1.5 GHC	4	1.5 GHC	7.5 GHC
5	0.2 GHC	1.6 GHC	5	1 GHC	8 GHC
6	0.1 GHC	1.9 GHC	6	0.5 GHC	9.5 GHC
7	0 GHC	2 GHC	7	0 GHC	10 GHC

Source: Binswanger, 1980.
Note: GHC = Ghana cedi (US$1 = 1.45 GHC, April 2010).

REFERENCES

AgSSI (Agricultural Services Sub-Sector Investment Programme).P. 2007a. "Farmer-Based Organizations Component: Progress Report, January 2007." Accra, Republic of Ghana: Ministry of Food and Agriculture.

_____. 2007b. "Implementation, Completion and Results Report." Accra, Republic of Ghana: World Bank.

_____. 2007c. "Report on Evaluation and Impact Study of the Farmer-Based Organizations Development Fund." Accra, Republic of Ghana: Ministry of Food and Agriculture.

Bain, J. S. 1951. "Relation of Profit Rate to Concentration: American Manufacturing 1936–1940." *Quarterly Journal of Economics* 65: 293–324.

Bernard, T., and D. J. Spielman. 2009. "Reaching the Rural Poor through Rural Producer Organizations? A Study of Agricultural Marketing Cooperatives in Ethiopia." *Food Policy* 34 (1): 60–69.

Bernard, T., A. S. Taffesse, and E. Z. Gabre-Madhin. 2008a. "Impact of Cooperatives on Smallholders' Commercialization Behavior: Evidence from Ethiopia." *Agricultural Economics* 39: 1–15.

Bernard, T., M.-H. Collion, A. DeJanvry, and P. Rondot. 2008b. "Do Village Organizations Make a Difference in African Rural Development? A Study for Senegal and Burkina Faso." *World Development* 36 (11): 2188–2204.

Binswanger, H. 1980. "Attitudes toward Risk: Experimental Measurement in Rural India." *American Journal of Agricultural Economics* 62 (3): 395-407.

Bolton, G. E., E. Katok, and R. Zwick. 1998. "Dictator Game Giving: Rules of Fairness versus Acts of Kindness." *International Journal of Game Theory* 27: 269–299.

Boulding, W., and R. Staelin. 1993. "A Look at the Cost Side: Market Share and the Competitive Environment." *Marketing Science* 12 (2): 144–166.

Bruns, B., and P. C. Bruns. 2004. "Strengthening Collective Action." In *Collective Action and Property Rights for Sustainable Development,* edited by R. Meinzen-Dick and M. Di Gregorio, 2020 Focus II. Washington, DC: International Food Policy Research Institute: Collective Action and Property Rights Program.

Cook, M. L., and M. Chambers. 2007. "The Role of Agricultural Cooperatives in Global Netchains." Working paper presented at the workshop on Small Farmer Organization and Markets in Developing Countries organized by INRA-MOISA and Wageningen University, Montpellier, France.

deGraft-Johnson, J. C. 1958. *African Experiment: Cooperative Agriculture and Banking in British West Africa.* London: C. A. Watts.

Develtere, P., I. Pollet, and F. Wanyama. 2008. "Cooperating out of Poverty: The Renaissance of the African Cooperative Movement." International Labour Organization, Geneva, Switzerland.

Di Vico, D. 2008. "La Comunita' ed il Mercato." *Corriere della Sera*, Italy, April 15.

Duflo, E., R. Glennerster, and M. Kremer. 2007. "Using Randomization in Development Economics." In *Handbook of Development Economics,* Edited by T. Paul Schultz and John Strauss, Vol. 4, 3895–3962, Chapter 61.

Durkheim, E. 1893. "De La Division Du Travail Social." http://classiques.uqac.ca/classiques/Durkheim_emile/division_du_travail/division_travail_1.pdf.

Francesconi, G. N., and N. Heerink. 2010. "Ethiopian Agricultural Cooperatives in an Era of Global Commodity Exchange: Does Organizational Form Matter?" *Journal of African Economies* Vol. 20 n.1 pp. 153–177.

Francesconi, G. N., and R. Ruben. 2008. "The Life Cycle of Agricultural Cooperatives: Implications for Management and Governance in Ethiopia." *Journal of Rural Cooperation* 36 (2): 115–130.

Granovetter, M. 1978. "Threshold Models of Collective Behavior." *The American Journal of Sociology* 683 (6): 1420–1443.

Grischow, J. D. 2006. "Shaping Tradition: Civil Society, Community and Development in Colonial Northern Ghana, 1899–1957." In *African Social Studies Series,* Vol. 14. Leiden, The Netherlands: Brill NV.

Hardin, G. 1968. “The Tragedy of the Commons.” *Science* 162 (3859): 1243–1248.

Hoff, K., and J. E. Stiglitz. 1993. “Imperfect Information and Rural Credit Markets: Puzzles and Policy Perspectives.” In *The Economics of Rural Organization: Theory, Practice and Policy,* edited by K. Hoff, A. Braverman, and J. E. Stiglitz, Oxford, U.K.: Oxford University Press.

Hussi, P., J. Murphy, O. Lindberg, and L. Brenneman. 1993. “The Development of Cooperatives and Other Rural Organizations: The Role of the World Bank.” Washington, DC: World Bank.

Imbens, G. W. 2009. “Better Late Than Nothing: Some Comments on Deaton (2009) and Heckman and Urzua (2009).” Department of Economics: Harvard University.

ICA (International Cooperative Alliance). 2007. http://www.ica.coop/.

Kadiyali, V., K. Sudhir, and V. R. Rao. 2001. “Structural Analysis of Competitive Behavior: New Empirical Industrial Organization Methods in Marketing.” *International Journal of Research in Marketing* 18 (1–2): 161–186.

Karantininis, K., and A. Zago. 2001. “Cooperatives and Membership Commitment: Endogenous Membership in Mixed Duopsonies.” *American Journal of Agricultural Economics* 83 (5): 1266–1272.

Kirsten, J. F., A. S. M. Karaan, and A. R. Dorward. 2009. “Introduction to the Economics of Institutions.” In *Institutional Economics Perspectives on African Agricultural Development*, edited by J. F. Kirsten, A. R. Dorward, C. Poulton, and N. Vink, 35–74 Washington, D.C.: International Food Policy Research Institute.

Kolavalli, S., and J. D. Brewer. 1999. “Facilitating User Participation in Irrigation Management.” *Irrigation and Drainage Systems* 13: 249–273.

Kugler, T., G. Bornstein, M. G. Kocher, M. Sutter. 2007. “Trust between Individuals and Groups: Groups Are Less Trusting Than Individuals but Just as Trustworthy.” *Journal of Economic Psychology* 28: 646–657.

Marshall, A. 1971. “On Cooperation.” *Annals of Public and Cooperative Economics* 42: 285–301.

Marx, K., and F. Engels. 1848. “The Communist Manifesto.” Edited by Engels.

Meinzen-Dick, R. S. 2009. “Coordination in Natural Resource Management.” In *Institutional Economics Perspectives on African Agricultural Development*, edited by J. F. Kirsten, A. R. Dorward, C. Poulton, and N. Vink, 318–342. Wahington, DC: International Food Policy Research Institute.

Michalopoulos, S.,and E. Papaioannou. 2010. “Divide and Rule or the Rule of the Divided? Evidence from Africa.” Solicited for *Econometrica.*

Mill, J. S. 1871. *On Liberty and Utilitarianism*. New York: Bantam Dell.

Oakeshott, R. 1978. *The Case for Workers’ Cooperatives*. Routledge and Kegan Paul Books, UK.

Olson, M. 1965. *The Logic of Collection Action: Public Goods and the Theory of Groups*. Cambridge, MA: Harvard University Press.

Onumah, G. E., J. R. Davis, U. Kleih, and F. J. Proctor. 2007. “Empowering Smallholder Farmers in Markets: Changing Agricultural Marketing Systems and Innovative Responses by Producer Organizations*.”* ESFIM Working Paper 2. IFAD, CTA, AGRICORD. http://www.esfim.org/esfim/documents/.

Ostrom, E. 2004. “Understanding Collective Action.” In *Collective Action and Property Rights for Sustainable Development,* edited by R. Meinzen-Dick and M. Di Gregorio, brief 2 of 16. Focus 2020, 2020 Vision, CAPRi, and International Food Policy Research Institute.

Platteau, J. P. 2004. “Monitoring Elite Capture in Community-Driven Development.” *Development and Change* 35 (2): 223–246.

_____. 2007. “Is Culture an Obstacle to African Economic Development?” Paper prepared for the first IERC conference: *The Economic Performance of Civilization: Roles of Cultures, Religion and the Law*. Los Angeles: University of Southern California.

Prescott, J. E., A. K. Kohli, and N. Venkatraman. 1986. “The Market-Share Profitability Relationship: An Empirical Assessment of Major Assertions and Contradictions.” *Strategic Management Journal* 7: 377–394.

Rondot, P., and M. H. Collion. 2001. "Agricultural Producer Organizations: Their Contribution to Rural Capacity Building and Poverty Reduction." *PSAOP* workshop report. Washington, DC: World Bank.

Ruben, R. 1997. "Making Cooperatives Work: Contract Choice and Resource Management within Land Reform Cooperatives in Honduras." PhD thesis, Free University of Amsterdam, The Netherlands.

Salifu, A., G. N. Francesconi, and S. Kolavalli. 2010. "A Review of Collective Action in Rural Ghana." Discussion Paper 00998. Washington, DC: International Food Policy Research Institute.

Sexton, R. J. 1986. "The Formation of Cooperatives: A Game Theoretic Approach with Implications for Cooperative Finance, Decision Making, and Stability." *American Journal of Agricultural Economics* 68 (2): 214–225.

Sexton, R., and J. Iskow. 1988. "Factors Critical to the Success or Failure of Emerging Agricultural Cooperatives." Giannini Foundation Information Series 88-3. Davis, CA: University of California.

Staatz, J. M. 1987. "Farmers Incentives to Take Collective Action via Cooperatives: Transaction Costs Approach." In *Cooperative Theory: New Approache*s, edited by J. Royer. Service Report 18. Washington, DC: United States Department of Agriculture- Agricultural Cooperative Service.

Sykuta, M. E., and M. L. Cook. 2001. "A New Institutional Economics Approach to Contracts and Cooperatives." *American Journal of Agricultural Economics* 83 (5): 1273–1279.

Tsekpo, A. K. 2008. "The Cooperative Sector in Ghana: Small and Big Business." In *Cooperating out of Poverty: The Renaissance of the African Cooperative Movement,* edited by P. Develtere, I. Pollet, and F. Wanyama, Geneva, Switzerland: International Labour Organization.

Varughese, G., and E. Ostrom. 2001. "The Contested Role of Heterogeneity in Collective Action: Some Evidence from Community Forestry in Nepal." *World Development* 29 (5): 747–765.

Wanyama, F. O., P. Develtere, and I. Pollet. 2008. "Reinventing the Wheel? African Cooperatives in a Liberalized Economic Environment." Working paper for the Belgian Federal Ministry for Social Integration. Leuven, Belgium: University of Leuven.

World Bank. 2007. "World Development Report 2008: Agriculture for Development." Washington, DC.

RECENT IFPRI DISCUSSION PAPERS

For earlier discussion papers, please go to http://www.ifpri.org/publications/results/taxonomy%3A468. All discussion papers can be downloaded free of charge.

1128. *Understanding the linkage between agricultural productivity and nutrient consumption: Evidence from Uganda*. John Ulimwengu, Saweda Liverpool-Tasie, Josee Randriamamonjy, and Racha Ramadan, 2011.

1127. *How prudent are rural households in developing transition economies: Evidence from Zhejiang, China*. Ling Jin, Kevin Z. Chen, Bingxin Yu, and Zuhui Huang, 2011.

1126. *Climate risk management through sustainable land management in Sub-Saharan Africa*. Ephraim Nkonya, Frank Place, John Pender, Majaliwa Mwanjololo, Appollonia Okhimamhe, Edward Kato,Susana Crespo, Jupiter Ndjeunga, and Sibiry Traore, 2011.

1125. *Evaluation of value-added agricultural advisory services: Case study of agriclinics in Southern India*. Claire J. Glendenning, Kwadwo Asenso-Okyere, and Suresh C. Babu, 2011.

1124. *Making Agriculture Pro-Nutrition: Opportunities in Tanzania*. Olivier Ecker, Athur Mabiso, Adam Kennedy, and Xinshen Diao, 2011.

1123. *Measuring the impacts of global trade reform with optimal aggregators of distortions*. David Laborde, Will Martin, and Dominique van der Mensbrugghe, 2011.

1122. *Managing future oil revenue in Uganda for agricultural development and poverty reduction: A CGE analysis of challenges and options*. Manfred Wiebelt, Karl Pauw, John Mary Matovu, Evarist Twimukye, and Todd Benson, 2011.

1121. *Impacts of an early education intervention on students' learning achievement: Evidence from the Philippines*. Futoshi Yamauchi and Yanyan Liu, 2011.

1120. *Supply and demand for cereals in Nepal, 2010–2030.* Sanjay K. Prasad, Hemant Pullabhotla, and A. Ganesh-Kumar, 2011.

1119. *Which trade integration scheme can best help Sub-Saharan Africa develop and export more processed agricultural goods?*. Mathilde Douillet, 2011.

1118. *Women cotton farmers—Their perceptions and experiences with transgenic varieties: A case study for Colombia.* Patricia Zambrano, Jorge H. Maldonado, Sandra L. Mendoza, Lorena Ruiz, Luz Amparo Fonseca, and Iván Cardona, 2011.

1117. *Can water allocation in the Yellow River basin be improved?: Insights from a multi-agent system model*. Ximing Cai, Yi-Chen E. Yang, Jianshi Zhao, and Claudia Ringler, 2011.

1116. *Using the regression discontinuity design with implicit partitions: The impacts of Comunidades Solidarias Rurales on schooling in El Salvador*. Alan de Brauw and Daniel Gilligan, 2011.

1115. *The quiet revolution in India's food supply chains*. Thomas Reardon and Bart Minten, 2011.

1114. *A review of input and output policies for cereals production in Nepal*. Hemant Pullabhotla, Ganga Shreedhar, A. Ganesh-Kumar, and Ashok Gulati, 2011.

1113. *Do shocks affect men's and women's assets differently?: A review of literature and new evidence from Bangladesh and Uganda.* Agnes R. Quisumbing, Neha Kumar, and Julia A. Behrman, 2011.

1112. *Overcoming successive bottlenecks: The evolution of a potato cluster in China*. Xiaobo Zhang and Dinghuan Hu, 2011.

1111. *The impact of land titling on labor allocation: Evidence from rural Peru*. Eduardo Nakasone, 2011.

1110. *A multiregion general equilibrium analysis of fiscal consolidation in South Africa*. Margaret Chitiga, Ismael Fofana, and Ramos Mabugu, 2011.

1109. *How far do shocks move across borders?:Examining volatility transmission in major agricultural futures markets*. Manuel A. Hernandez, Raul Ibarra, and Danilo R. Trupkin, 2011.

1108. *Prenatal seasonality, child growth, and schooling investments: Evidence from rural Indonesia*. Futoshi Yamauchi, 2011.

1107. *Collective Reputation, Social Norms, and Participation*. Alexander Saak, 2011.

1106. *Food security without food transfers?: A CGE analysis for Ethiopia of the different food security impacts of fertilizer subsidies and locally sourced food transfers*. A. Stefano Caria, Seneshaw Tamru, and Gera Bizuneh, 2011.

INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE

www.ifpri.org

IFPRI HEADQUARTERS

2033 K Street, NW
Washington, DC 20006-1002 USA
Tel.: +1-202-862-5600
Fax: +1-202-467-4439
Email: ifpri@cgiar.org

IFPRI DAKAR

Titre 3396, Lot #2
BP 24063 Dakar Almadies
Senegal
+221.33.869.9800
ifpri-dakar@cgiar.org